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Pelagic Fisheries Research Program

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Incidental Catches of Fishes by Hawai'i Longliners

William A. Walsh

A two-year study of incidental catches of several species of fishes by the Hawai'i-based longline fishery was initiated at the National Marine Fisheries Service (NMFS) Honolulu Laboratory in October 2000 under the sponsorship of the Pelagic Fisheries Research Program (PFRP). The investigators are William Walsh of the University of Hawai'i Joint Institute for Marine and Atmospheric Research, and Samuel Pooley, chief of Fishery Management and Performance Investigation at the NMFS Honolulu Laboratory.

*All of the species being studied are important ecologically, economically or recreationally, or for some combination of these reasons, but unique problems remain with regard to monitoring and management. The species include blue marlin (*Makaira mazara*), blue shark (*Prionace glauca*), mahimahi (*Coryphaena hippurus*), opah (*Lampris guttatus*), wahoo (*Acanthocybium solandri*), and several pomfrets (*Bramidae*). The project was designed and undertaken to address these problems.*

Three main sources of data are used in this work:

- fishery observers (who were deployed on about 5% of fishing trips made by this fleet from 1994 to 1999, but who now cover about 20%) gather data that summarize catch and operational details such as geographic position, number of hooks, target depth, gear soak time, and type of bait for each longline set (i.e., gear deployment)[1];
- mandatory logbooks submitted to NMFS by commercial longline vessels; and,
- data obtained from the United Fishing Agency fish auction in Honolulu (the principal outlet for the longline catch), which are sometimes used to check on logbooks, observers, or both, especially when fish identifications appear questionable.

Objectives and Methodology

This project has four objectives. The first is to develop a type of statistical simulation known as a generalized additive model (GAM) of catch rates for each species. Each model will in turn be used to generate corrected fishery-wide catch statistics and to investigate geographic distributions; the final objective is to improve linkages among the three data sources.

The analytical procedures involve fitting the GAMs to the fishery observer data and then applying the coefficients from these models fishery-wide to serve as a sort of "surrogate" observer on the large majority of longline sets that are unobserved. The latter

(continued on page 2)

[1]Because the observers are not directly involved in the deployment or retrieval of the longline gear, their data are regarded as appropriate for use in development of standards of comparison for the mandatory logbooks submitted to NMFS by commercial longline vessels.

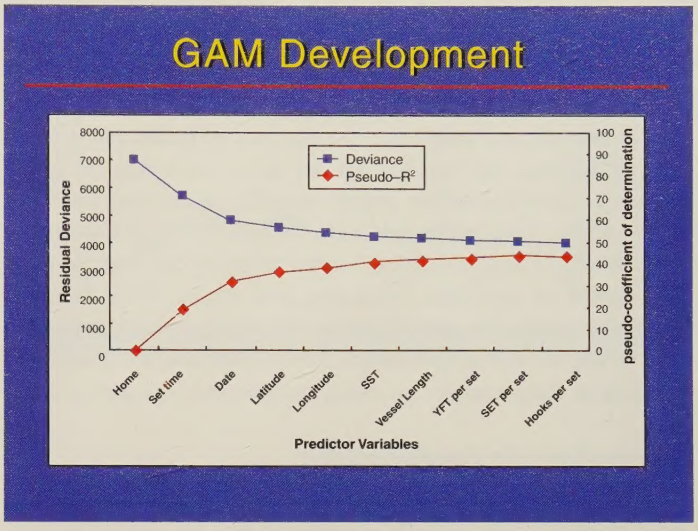

Figure 1. GAM development from observed longline sets from March 1994 through February 2001 (N= 4847 longline sets).

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means that an expected catch is computed for each longline set, and the expected catch values are used as comparative standards for the logbook reports, with comparisons performed by linear regression and regression diagnostics techniques.

One constraint is that the logbooks do not include nearly as many operational details as the observer data. This requires that pragmatic decisions be made regarding predictor choices to avoid large losses of data because the fitting and application procedures cannot accommodate missing values. Typical predictors include the set latitude and longitude, the number of hooks per set, the date of fishing, and catches per set of co-occurring or target species. It nonetheless has proven possible to develop parsimonious models that yield considerable insight into logbook reporting behavior, a countervailing consideration to the need to limit the number of candidate predictors. Full details of the development and application of a GAM for monitoring blue shark catch rates in this fishery are presented in Walsh and Kleiber (2001) and Walsh et al. (in press).

Species-Specific Considerations

The objectives and methodology described above are subject to important species-specific considerations. One is that the typical level of species abundance in a catch strongly influences logbook reporting behavior and accuracy. For example, blue shark and mahimahi are the predominant species in the incidental catch and can be very numerous on longline sets (e.g. 100 or more); this results in approximation of catch numbers, such that large catches are often logged as multiples of 5, 10, or 25, suggesting that the fish were not individually counted, and introducing a source of error in the logbooks for these species. In addition, these species are often discarded, especially when catches are large, but the logbooks may not document the releases, which represents a form of under-reporting. In contrast, species such as wahoo and opah comprise small fractions of the catch and therefore do not present the challenge of counting large numbers of fish— but because they are not taken on most longline sets, it is difficult to detect under-reporting.

The second general consideration is the economic importance (or lack thereof) of the species in question. Results to date indicate that logbook reporting accuracy tends to be inversely related to economic value; hence, opah, which commands a good price, tend to be reported accurately, whereas blue shark, with negligible value, may be inaccurately reported or not reported at all depending upon the circumstances.

Biological characteristics and inexpert taxonomy are also relevant to these analyses. The pomfrets, for example, actually comprise a complex rather than a single species, but are reported as a single entity because they are quite similar in appearance. As such, it is not possible to clearly define the effects of intrinsic and extrinsic factors on catch rates for individual pomfret species. There is a similar complicating factor in the case of blue marlin: the similarity of the species to striped marlin (Tetrapturus audax) and black marlin (Makaira indica) tends to give rise to accurate reporting of marlins in the aggregate, compromised by inaccurate reporting of individual species.

Blue Marlin: GAM Development and Application

Results obtained to date with blue marlin were presented at the PFRP Principal Investigators' meeting in December. The fitting of a GAM to blue marlin catches per set as reported by fishery observers is summarized in Figure 1. The abscissa presents several environmental and operational factors, arranged left to right according to their order of entry into the GAM. The left ordinate is the residual deviance, and the blue trace represents the deviance reduction achieved with each sequential entry. The right ordinate is the pseudo-coefficient of determination expressed as a percentage, and represents a measure of the explanation of the variation in the response.

The results show that although nine variables yielded significant deviance reductions, catch rates are primarily influenced by the begin-set time, latitude, longitude, date of fishing, and sea surface temperature (SST). It should be noted that begin-set time presumably is a proxy for the type of fishing effort (e.g., tuna- or swordfish-directed) and that the date of fishing probably reflects one or more underlying intra- or interannual process(es) that influence(s) catch rates. In addition, two of the less important predictors were nonetheless significant: catches per set of yellowfin and bigeye tuna, which are both important target species in this fishery.

Figure 2 is a comparison across the seven-year study period of the monthly mean fleet-wide catches of blue marlin (N= 76,588 longline sets) to the mean GAM predictions; the comparison demonstrates that the two were significantly correlated ($r = 0.746$), and therefore that the latter represents a reasonable monitoring tool for blue marlin. However, it was noteworthy that on several occasions, most notably in 1995 and 1999, the logbook reports apparently exceeded the GAM predictions. This suggests that either the GAM failed to describe some important aspect of reality, or that there was bias in the logbook reports. The latter is considered more likely because marlin identification has been an ongoing problem for this fishery (R.Y. Ito, NMFS Fishery Monitoring and Economic Performance Investigation, personal communication). The seven-year logbook and GAM-estimated catch totals (see Table 1) suggest that blue marlin has been over-reported in the logbooks by approximately 21%.

Table 1. Nominal and Predicted Blue Marlin Catches

Logbook reported total blue marlin catch (unobserved sets with complete predictor data)	39,761
GAM estimated total blue marlin catch (unobserved sets with complete predictor data)	32,751
Apparent "over-reporting"	21%

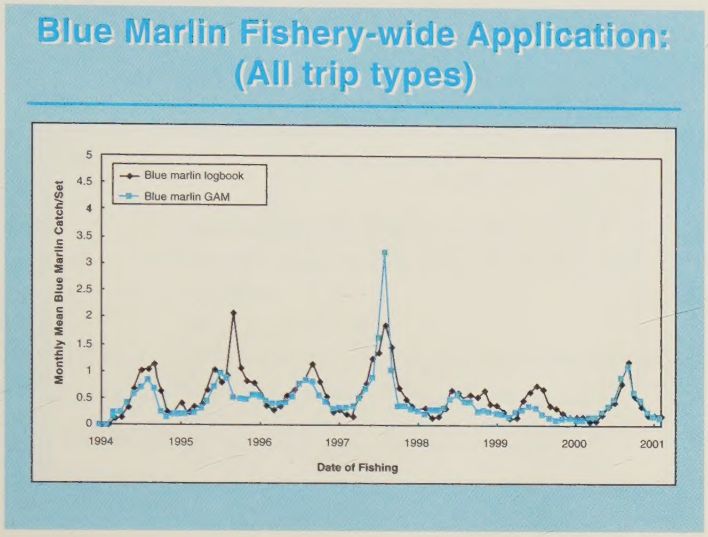

Figure 2. Monthly mean fleet-wide catches of blue marlin throughout the seven-year study period (N = 76,588 longline sets).

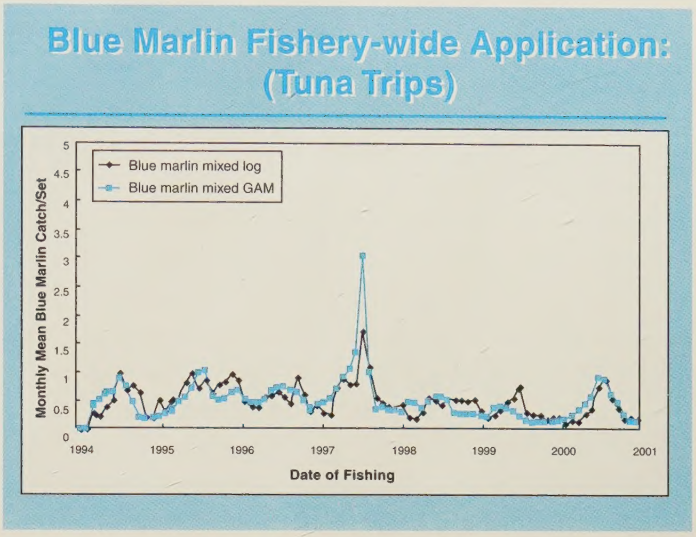

Figure 3. Plots of monthly logbook means and GAM predictions on tuna sets.

The plots of monthly logbook means and GAM predictions on tuna sets (see Figure 3) and mixed-species sets (see Figure 4) reveal that mean catch rates for blue marlin are greater on mixed-species sets than on tuna sets (tuna trips= 0.5 per set; mixed trips= 0.7 per set) and that the GAM and logbook trends are significantly correlated for both types of effort (tuna: r = 0.777; mixed species: r = 0.728). It is also apparent that occurrences of over-reporting tend to be most pronounced on mixed-species trips in the latter part of the year after the annual peak in catch rates has subsided, as shown by the GAM and verified by auction data.

Results from January 2000 to February 2001 are shown in Table 2, and exemplify the improved accuracy attained with these analytical methods. The nominal logbook catch total (3,878 blue marlin) was 6% less than the GAM-estimated total (4,113 blue marlin), which was regarded as unrealistic agreement because prior experience with logbooks prepared in the presence of observers suggested that a negative bias of about 10% represents "optimal" reporting for this species. Applying the aforementioned diagnostic techniques led to deletion of 5.4% of the trips during this 14-month period.

The numbers of fish logged as blue marlin but identified as striped marlin by the United Fishing Agency demonstrated a clear pattern of logbook errors. This indicated that the statistical methods used were detecting real outliers, not simply numerical aberrations. The corrected logbook and GAM-estimated catch totals (i.e., the data from the retained sets) appeared credible, with the caveat that because the deletions were performed conservatively, the logbook totals probably remain inflated to some inestimable extent. The logbook and GAM-estimated trends after deletion of the identified outliers (see Figure 5) are consistent with expectations, with the logbook trace below that of the GAM in every month except at its peak. The next tasks for this species are to perform corrections for blue marlin releases, and for misidentifications of black marlin for this recent period and then back through the logbooks' archive.

(continued on page 4)

Table 2. Corrections of Blue Marlin Catches: January 2000 – February 2001

Deletions	55 trips (24 mixed; 31 tuna) 21 vessels (10 mixed, 12 tuna)*
Comparison of logbook to UFA regarding deletions	Logbooks: 495 blue marlin; 47 striped marlin UFA: 98 blue marlin; 398 striped marlin
Corrected logbook catch	mixed trips: 702 blue marlin tuna trips: 2,193 blue marlin
GAM predicted catch	mixed trips: 672 blue marlin tuna trips: 3,208 blue marlin
Reporting Errors	Apparent "over-reporting" mixed trips: 4.5% "under-reporting" tuna trips: 32.0% Combined apparent "under-reporting" : 25.0%

**the vessel total is less than the sum of its components because one of the boats had both a tuna and a mixed-species trip deleted.*

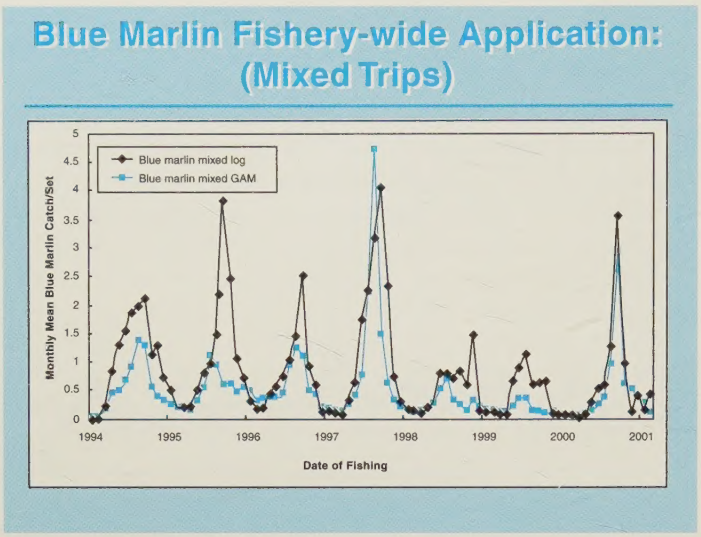

Figure 4. Plots of monthly logbook means and GAM predictions on mixed-species sets.

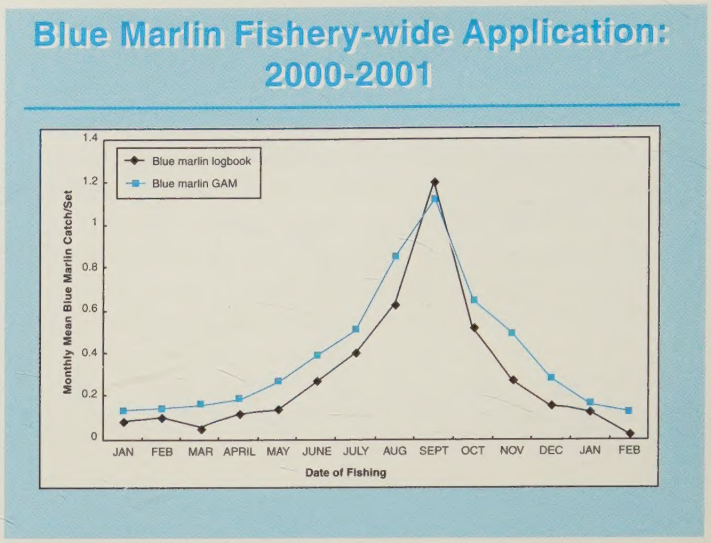

Figure 5. Logbook and GAM-estimated trends after deletion of identified outliers.

Use and Importance of the Blue Marlin Results

Results from this project are expected to be used in other PFRP-sponsored research projects. The blue marlin results are intended for use in a stock assessment to be conducted by Pierre Kleiber of the NMFS Honolulu Laboratory; the corrected catch rates will be used to prepare the most accurate assessment possible.

Blue marlin is the most prized species taken by the charter recreational fishery in Hawai'i, and because it is so important, there is a perception within the recreational sector that the long-line fleet takes an excessive number of fish. Results from this project are likely to demonstrate that the longline fleet has in fact taken considerably fewer blue marlin than the official fishery statistics would indicate. As such, the perception of rivalry between these two fishery sectors is exaggerated and to some extent a misperception.

Conclusions

This study has shown that:

- incidental catches of several species of fishes by the Hawai'i-based longline fleet are well suited to analyses with GAM and linear regression methods;
- GAM predictions can serve in lieu of fishery observers on unobserved sets, as indicated by identification of real outliers and errors rather than observations that were simply unusual; and,
- a GAM of blue marlin catch rates included nine significant predictor variables, and its fishery-wide application revealed over-reporting in logbooks relative to time and different sectors of the longline fishery.

The results are expected to prove useful as working material in a stock assessment, and should also document that there is less competition than is widely believed between the longline and charter recreational sectors of the Hawai'i-based fishery.

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Walsh, W.A. and P. Kleiber. 2001. Generalized additive model and regression tree analyses of blue shark (Prionace glauca) catch rates by the Hawai'i-based longline fishery. Fisheries Research 53:115-131.

Walsh, W.A., P. Kleiber, and M. McCracken. Comparison of logbook reports of incidental blue shark catch rates by Hawai'i-based longline vessels to fishery observer data by application of a Generalized Additive Model. In press, Fisheries Research.

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William Walsh is an Assistant Researcher at the University of Hawai'i Joint Institute for Marine and Atmospheric Research, and a Principal Investigator for the PFRP project "Distributions, Histories and Recent Catch Trends with Six Fish Taxa taken as Incidental Catch by the Hawai'i-based Commercial Longline Fishery." His co-investigator on the project is Samuel Pooley, Industry Economist with the NMFS Honolulu Laboratory.

Meetings in 2002

The following meetings of interest to the Standing Committee on Tuna and Billfish were obtained at:
http://www.spc.int /OceanFish/Docs/meetings.pdf.

Date	Meeting Title, Sponsor, Location
Jan 7–9	Expert Consultation on Catch Certification Schemes, FAO, La Jolla, CA
Jan 31–Feb 1	29th Meeting of the International Review Panel, IATTC, La Jolla, CA
Feb 1	9th Meeting of the Permanent Working Group on Tuna Tracking, IATTC, La Jolla, CA
Feb 4–9	8th Meeting of the Working Group on the IATTC Convention, IATTC, La Jolla, CA
Feb TBA	CPUE Modeling/Management Strategy Workshop, CCSBT, Tokyo
Mar 5–6	3rd Meeting of the Bycatch Working Group, IATTC, La Jolla, CA
Mar 7–8	6th Meeting of the Permanent Working Group on Fleet Capacity, IATTC, La Jolla, CA
Mar TBA	Billfish assessment planning meeting, ICCAT, TBA
Apr 29–May 3	3rd Meeting of the Scientific Working Group, IATTC, La Jolla, CA
Apr TBA	GFCM-ICCAT data preparatory meeting, ICCAT, TBA
May 22–24	Third International Conference on Recreational Fishing, Darwin
Jun 18–21	9th Tuna Tracking Working Group, 30th International Review Panel, Meeting of the Parties to the AIDCP, IATTC, Mexico (TBA)
Jun 24	3rd Compliance Working Group/Joint Working Group on Fishing by Non-Parties, IATTC, Mexico (TBA)
Jun 25–28	Annual meeting of the IATTC, IATTC, Mexico (TBA)
Jun–Jul TBA	Age Estimation Workshop, CCSBT, Melbourne
Jul TBA	15th Meeting of the SCTB, SCTB, Honolulu
Jul TBA	Bluefin tuna assessments, ICCAT, TBA
Aug TBA	Stock Assessment Meeting, CCSBT, Canberra
Sep TBA	Swordfish assessments, ICCAT, TBA
Oct TBA	Scientific Committee, CCSBT, Canberra
Oct TBA	Bigeye assessment, ICCAT, TBA
Oct TBA	Standing Committee on Research and Statistics, ICCAT, TBA
Nov TBA	Annual Meeting of the CCSBT, CCSBT, Canberra
Oct 28–Nov 4	Commission Meeting, ICCAT, TBA

Upcoming Events

February 11–15, 2002

2002 Ocean Sciences Meeting, Honolulu, Hawai'i

Convened by the American Geophysical Union and the American Society of Limnology and Oceanography, and described as "one of the best meetings for interactions between biological and physical oceanographers." Details and on-line registration at https://jupiter.agu.org/os02rgels. html. Preregistration deadline is January 11, 2002; after January 21, individuals must register on-site.

February 21–March 1, 2002

Preparatory Conference for the Establishment of the MHLC Commission (PrepCon 2)

The second session of the PrepCon 2 will take place in Papua New Guinea from February 21 to March 1, 2002. Proposed schedule: Informal consultations Feb. 21–22 at Madang Resort, Madang; retreat for delegation leaders on Feb. 23–24 (location TBA); PrepCon 2 from February 25 to March 1 at Madang Resort. Additional details at:
http://www.ocean-affairs.com/prepcon2.html.

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PI's Workshop 2001—Introducing Ecosystem-Based Management

PFRP Principal Investigators gathered at the University of Hawai'i for their annual workshop early in December, meeting over three days to share project presentations and status reports, and prepare for the PFRP 2002 Request for Proposals (RFP). The Workshop this year was planned in part to help shape an RFP for research that supports ecosystem-based management of pelagic fisheries.

According to PFRP Director John Sibert, this strategy is rapidly becoming the preferred mode of fishery management, yet scientists and managers lack a clear understanding of how it works. To shed light and encourage interest in the topic, many of the workshop presentations focused on "ecosystem approaches" to fisheries research.

John Sibert opened the Workshop with an overview of ecosystem-based resource management, followed by Tim Essington, who outlined the limits of the same. Subsequent presentations included Graeme Parkes on "Ecosystem and Precautionary Approaches in Antarctic Fisheries Management;" Ramzi Mirshak on "Application of Ocean Atlas Data as Part of a Comprehensive Coral Reef Ecosystem Monitoring System;" Patrick Lehodey on "A Dynamic Spatial Modeling of the Pelagic Ecosystem as an Integrative Framework for a Regional

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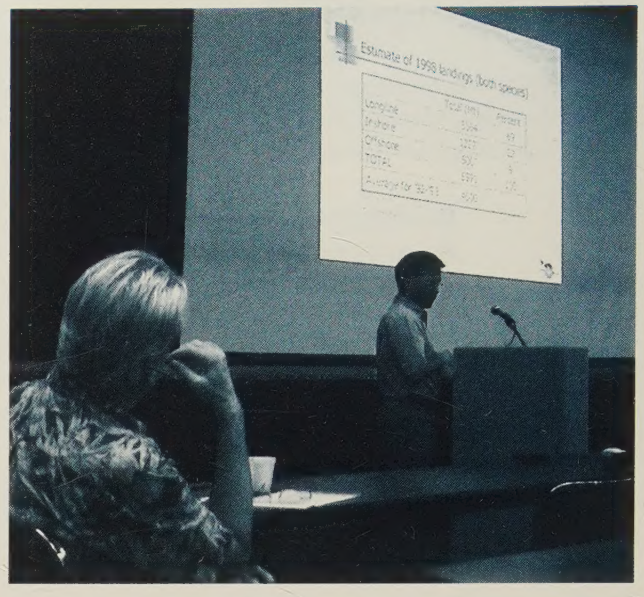


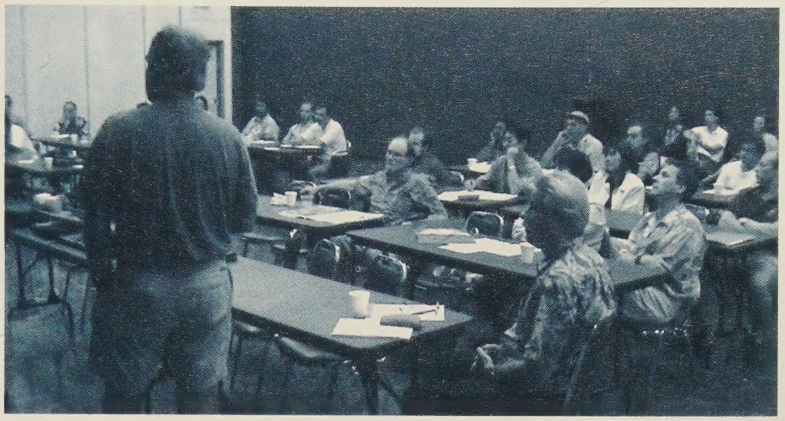
Shiham Adam is working with John Sibert, Dave Itano and Kim Holland to analyze data from the Hawai'i Tuna Tagging Program, in an effort to gain insights into tag attrition and estimated yield-per-recruit.

Group shot, final day: 21 of nearly three dozen researchers who attended the PFRP's 2001 Principal Investigators Workshop to present project updates and consider opportunities for fisheries research focused on ecosystem-based management.

PI's Workshop 2001 (continued from page 6)

Behavioral features of tuna aggregations around FAD's
Aggregating Devices:
sensory cues, orientation, and residence time
Laurent Dagorn

Laurent Dagorn discussed the advantages and behaviors characteristic of tuna schooling, and what this could reveal about why the fish aggregate.



Kim Holland told PFRP researchers that about 15 FADS around O'ahu are being equipped with data loggers to listen for the presence of tuna carrying sonic transmitters; he and Dave Itano will start tagging tuna with transmitters late in January, and the "audio-locating" results will complement the PFRP Tuna Tagging Program.

Project," and Valerie Alain on "A Food Web Study in the Western and Central Pacific Ocean Tuna Ecosystem."

The objective with regard to the RFP was to establish the goals, appropriate policies and information requirements for ecosystem-based resource management of pelagic fisheries. For more information, interested researchers should contact John Sibert (jsibert@soest.hawaii.edu) or Dodie Lau [dlau@soest.hawaii.edu, (808) 956-7895], or consult the PFRP Web Site at http://www.soest.hawaii.edu/PFRP.

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Pacific Agency's Technology Nabs Atlantic Scofflaw

The National Oceanic and Atmospheric Administration (NOAA) in December successfully prosecuted a Massachusetts-based fishing captain for repeatedly entering a closed area about 160 nautical miles off the Northeast Atlantic coast. NOAA says it was the first federal fisheries prosecution based exclusively on vessel-tracking data gathered by the satellite-based Vessel Monitoring System (VMS), which, in a slight geographic irony, was designed for the Pacific-based Forum Fisheries Agency (FFA).

The FFA serves its 16 South Pacific member nations through research on conservation and optimum utilization of the region's marine resources, as well as advocacy for the sovereign rights of coastal states. It commissioned the VMS to enable monitoring of vessels through use of global satellite positioning and advanced communications and computer technology. According to the FFA, automatic analysis of vessel position information allows speedy identification of potentially illegal fishing activity, and quick distribution of information to surveillance and enforcement authorities.

In this case, U.S. Coast Guard Judge Edwin Bladen assessed a $250,000 fine and ordered permanent revocation of the federal fishing permit of the scallop vessel Independence, and the federal operator permit of its captain, Lawrence Yacubian, for repeatedly entering an area closed to protect spawning groundfish.

"The significance of this case was that the judge accepted VMS data as admissible evidence that the vessel was inside the closed area," said NOAA Special Agent Louis Jachimcyzk. "This type of information had never been used on its own to prove a closed-area case."

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Protected Species Workshops Continue for Hawai'i Longliners

Carla Gore

The National Marine Fisheries Service (NMFS) continues to host its Protected Species Workshops to share vital information with Hawai'i longliners about how to avoid— or properly handle and release— protected species while at sea. The 2001 Workshops were presented in the primary languages of the fishery (English, Vietnamese and Korean) and scheduled in the late summer and early fall with advice from the Hawai'i Longline Association (HLA) to ensure a good turnout with minimal inconvenience to the fishermen.

Workshop Content

The Workshops focused on handling, resuscitation and release of sea turtles, with guidelines explained in an instructional video. The biology of sea turtles was covered by staff from the Western Pacific Regional Fisheries Management Council (WPRFMC), while species identification was discussed in a prerecorded slide show prepared by NMFS staff. NMFS staff also outlined regulations regarding mitigation and recovery in interactions with sea turtles.

Identification, life history and distribution of seabirds were also taught at the Workshops, along with regulations regarding seabird bycatch and mitigation. A video created for the Workshops illustrated general techniques for handling most seabirds, and specific techniques for the Short-Tailed Albatross; it was presented by the U.S. Fish & Wildlife Service (FWS) and summarized in an informational placard.

Also covered were gear disentanglement, identification of marine mammals, and the Marine Mammal Authorization Program (see boxed text for background). Species guides and informational placards (available in Korean and Vietnamese) were given to all Workshop participants, while vessel operators were given workbooks containing copies of each presentation, current regulations, species identification and handling placards, marine mammal guides, and blue-dyed bait cards. The workbooks are intended to be kept on the vessels and updated annually.

Sharing Fisheries Knowledge

In addition to the slide and video presentations, Russell Ito, Chris Boggs and Yonat Swimmer from the NMFS Honolulu Lab presented Year 2000 logbook and catch data, and discussed the experiment to modify fishing gear to reduce sea turtle bycatch. Sean Martin and Scott Barrows of the HLA gave a brief introduction to the Workshop, and fishermen were encouraged to ask questions and voice concerns. Korean and Vietnamese translators eased communication, which helped when fishermen raised questions about handling guidelines for the Short-tailed albatross; the NMFS and USFWS are working to clarify the guidelines.

Collaborators & Rationale

Sole sponsor last year, the NMFS this year increased the number of agencies involved in organizing the Workshops: in addition

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The Marine Mammal Authorization Program

The Marine Mammal Authorization Program (MMAP) provides an exemption for commercial fishermen from the general taking prohibitions of the Marine Mammal Protection Act (MMPA). The MMAP replaces the Interim Exemption for Commercial Fishing that was in effect from 1989 to August 1995.

Information collected under the MMAP (and from other sources) provided the basis for determining whether the incidental serious injury and mortality of marine mammals in commercial fishing operations was reduced to "insignificant levels" (those approaching a zero mortality and serious injury rate) by the target date of April 30, 2001.

Amendments to the MMPA in 1994 resulted in a number of changes to regulations governing incidental taking; the changes included:

- issuance of permits to incidentally take endangered and threatened marine mammals;
- a simplified registration process, and new criteria for Category I, II and III fisheries; and,
- establishment of take-reduction teams and development of take-reduction plans for certain fisheries.

The NMFS annually reviews and revises its list of Category I, II and III fisheries, so the requirement to register with NMFS may change from year to year. Category I designates fisheries with frequent serious injuries and mortalities incidental to commercial fishing; Category II designates fisheries with occasional serious injuries and mortalities, and Category III designates fisheries with no known serious injuries or mortalities.

Marine Mammal Authorizations are issued in January of each year, when the NMFS or its designated agent mails a registration or renewal package to all vessel owners who may participate in Category I or II fisheries. Vessel owners must have a valid authorization certificate in hand before resumption of fishing each year.

Protected Species Workshops (continued from page 8)

to its Pacific Islands Area Office, Honolulu Lab and Enforcement Division, contributors included the WPRFMC, HLA, and the FWS.

Six Workshops were originally scheduled for between August 28 and September 13 (two in each of the languages), but the terrorist attacks of September 11 forced the last two to be rescheduled when the Sand Island Coast Guard station in Honolulu was closed for security reasons. The delayed Workshops were held on October 19 and 22 at the NMFS Area Office, and make-up sessions were scheduled for the first Wednesday of each month beginning in December.

The Workshops were created in response to an emergency rule enacted in June 2000 as one of the requirements of the NMFS Turtle Biological Opinion; the rule requires all Hawai'i-based longliners to attend a Protected Species Workshop each year, and specifies that they earn a certification card that must be carried on the vessel while fishing. A total of 89 vessel operators and 114 owners, crew and other personnel attended the 2001 Workshops.

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Carla Gore is a Biologist with the NMFS Pacific Islands Area Office.

PrepCons Advance MHLC

Following are highlights from the website describing the status of the Preparatory Conferences for the Establishment of a Commission for the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific (MHLC PrepCons). The site address is http://www.ocean-affairs.com/PrepCon.html). See "Upcoming Events" for dates and preliminary information on PrepCon 2, scheduled for late February.

Matters for Future PrepCons

A number of items referred to in the resolution establishing the PrepCons will be considered at future PrepCons; these include:

- Choosing a location for the headquarters of the Commission (the Forum Fisheries Committee informed the PrepCon that a single candidate from the region would be selected through an evaluation process, with a formal proposal to be presented at a later PrepCon);
- Completing Draft Financial Regulations; and,
- Completing a Draft Agenda for the first meeting of the Commission.

It also was agreed to establish a PrepCon Organizational Fund (PCOF) to be financed through voluntary contributions or funding in kind, to offset the costs of future PrepCons as well as the costs associated with an interim secretariat. Following discussions with the Forum Fisheries Agency (administrator of the PCOF), agreement was reached in June 2001 on guidelines for administration of the PCOF.

Also in June, PrepCon Chairman Michael Powles wrote to participants appealing for donations to the PCOF. As of November 15, 2001, contributions to the PCOF had been received from Australia, New Zealand and the United States. PrepCon 2 will be provided with a full report on the status of the PCOF, together with information on disbursements made from the Fund.

PrepCon 1

The first session of the Preparatory Conference was convened by New Zealand, as depository of the Convention, in Christchurch from April 23 to 28, 2001. Among the main achievements and decisions of the first session were:

- Appointment of Ambassador Michael Powles (New Zealand) as Chairman of the PrepCon;
- Adoption of an agenda, subject to amendment, which would serve as the basis of work for future PrepCons;
- Establishment of two open-ended working groups to consider organizational and budget matters and the provision of scientific advice to the Commission (consisting of agreement on the terms of reference for the two working groups, and adoption of a plan of work for each group);
- Agreement to establish a PrepCon organization fund to finance future PrepCons and an interim secretariat;
- A first reading of the draft rules of procedure for the Commission;
- Agreement to convene an informal consultation immediately prior to PrepCon 2 to discuss mechanisms to promote participation in the Convention; and,
- Tabling of a paper on the participation of territories in the future Commission, with further discussion to occur at future PrepCons.

With regard to the Working Groups: Ambassador Lucy Bogari (Papua New Guinea) was appointed to chair the Group focused on the organizational structure of the Commission, its budget and financial contributions. Peter Ward (Australia) was appointed chairman of the Group focused on the scientific structure of the Commission and the provision of interim scientific advice; Liu Xiaobing (China) was appointed vice-chairman of this Group.

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Giant "Mystery Squid" Caught on Video

A group of NOAA-affiliated scientists conducting undersea research in December spotted a 21-foot-long squid at a depth of about 6,300 feet in the Gulf of Mexico. Promptly dubbed the "Mystery Squid," the cephalopod will retain its informal nom de plume while researchers complete its classification and naming. The squid is featured in an article in the Dec. 21 issue of the journal Science, and its taxonomy is under way by scientist Michael Vecchione of NOAA's National Marine Fisheries Services Systematics Laboratory.

According to Science, the December sighting is the most recent in a string of eight worldwide; it took place while researchers were investigating gas hydrates from the submersible Alvin. "The scientists in the submersible got a close-up look and saw tiny suckers along some of the arms," says Vecchione, whose specialty is cephalopods. He arranged for scientists from eight institutions in four countries to pool their observations and document the worldwide occurrence of these unusual animals. This type of squid has also been seen west of Africa, in the Indian Ocean, and near Hawai'i, at depths ranging from 6,300 to 15,390 feet.

"These squids are not just a new species, they are very different from any squid ever seen before," says Vecchione. "They have... extremely long, slender arms and tentacles that have 'elbows,' and very large fins extending beyond the end of the body. One of the squids was estimated to be 21 feet long and another was 13 to 16 feet long."

Vecchione suggested that the squid could be a never-before-seen adult of the family that he and a co-author recently described and classified from two juveniles and a larval-like specimen.

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PFRP Pelagic Fisheries Research Program

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